

What is claimed is:

1. A receiving device for receiving spread
signals which are respectively transmitted over a
5 plurality of channels in a CDMA communication,
comprising:

a path detector, which is used in a time-division
manner so as to generate timing signals for the
plurality of channels, for generating a timing signal
10 corresponding to each of the plurality of channels
according to a correlation between an input signal
including the spread signals which are respectively
transmitted over the plurality of channels and a
spread code corresponding to each of the plurality of
15 channels; and

a plurality of despread demodulators, which are
arranged for the plurality of channels, for
demodulating a corresponding spread signal among the
plurality of spread signals included in the input
20 signal according to the timing signal generated by
said path detector.

2. The receiving device according to claim 1,
wherein said path detector comprises:
25 spread code generating means for generating spread

codes corresponding to the plurality of channels in an order according to a predetermined algorithm;

a matched filter for outputting correlation level data between the input signal and the spread code generated by said spread code generating means; and

timing signal generating means for generating a timing signal based on the correlation level data.

3. The receiving device according to claim 1, wherein:

a spread signal transmitted over each of the plurality of channels includes pilot signals inserted at predetermined intervals; and

said path detector generates the timing signal by using the pilot signals for each of the plurality of channels.

4. The receiving device according to claim 1, which generates a timing signal by using a plurality of pilot signals for each of the plurality of channels, wherein said path detector comprises:

first path detecting means for detecting a path with a voltage addition operation if a correlation level between pilot signals is high;

second path detecting means for detecting a path

with a power addition operation if the correlation between pilot signals is low; and

timing signal generating means for generating the timing signal based on the paths detected by said first and second path detecting means.

5. The receiving device according to claim 1, which generates a timing signal by using a plurality of pilot signals for each of the plurality of channels, wherein said path detector comprises:

path detecting means for detecting a path with an operation for adding an absolute value of correlation level data of each of the plurality of pilot signals; and

timing signal generating means for generating the timing signal based on the path detected by said path detecting means.

6. The receiving device according to claim 1, further comprising:

priority information storing means for storing information about priorities of the plurality of despread demodulators, wherein

said path detector operates for a despread demodulator determined based on the priority

information stored in said priority information storing means.

5 7. The receiving device according to claim 6, wherein when a synchronization establishment process is requested for a certain channel, a higher priority is given to a despread demodulator corresponding to the channel.

10 8. The receiving device according to claim 6, further comprising:

 profile detecting means for detecting a delay profile of each of the channels; and

15 priority determining means for determining the priorities of the plurality of despread demodulators based on an amount of a change of the delay profile, which is detected for each of the channels.

20 9. The receiving device according to claim 8, wherein said priority determining means determines the priorities of the plurality of despread demodulators based on a change of a maximum path on each of the channels.

25 10. The receiving device according to claim 8,

wherein said priority determining means determines the priorities of the plurality of despread demodulators based on changes of a maximum path on each of the channels and of a path existing in a predetermined range from the maximum path.

11. The receiving device according to claim 6, wherein said path detector determines the priorities of the plurality of despread demodulators based on an error rate of each of the channels.

12. The receiving device according to claim 6, wherein said path detector references said priority information storing means only when timings of the pilot signals on the plurality of channels overlap.

13. The receiving device according to claim 3, further comprising:

a memory for storing input signals; and

memory controlling means for reading the input signals from said memory and for providing said path detector with the read signals, when the timings of the pilot signals on the plurality of channels overlap, wherein

said path detector sequentially generates timing

signals corresponding to the channels by using the pilot signals on the plurality of channels.

14. The receiving device according to claim 13,
5 wherein said memory controlling means repeatedly reads the input signals from said memory a required number of times, according to the number of overlapping pilot signals.

10 15. The receiving device according to claim 13, wherein when the timings of the pilot signals on the plurality of channels overlap, only portions including the pilot signals within the input signals are stored in said memory.

15 16. The receiving device according to claim 1, further comprising:

delaying means for delaying a signal to be input to the plurality of despread demodulators by an amount
20 of time required to generate the timing signal by said path detector.

17. The receiving device according to claim 3, further comprising:

25 a memory for storing at least a portion including

a pilot signal within the input signal; and

memory controlling means for repeatedly reading the pilot signal from said memory an L-1 number of times and for providing said path detector with read pilot signals, when L branch space diversity reception is made, wherein

said path detector sequentially generates timing signals by using the respective pilot signals.

18. A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, comprising:

a path detector, which operates in a time-division manner, for detecting delay profiles for the plurality of channels and for generating a timing signal corresponding to each of the channels based on the delay profiles; and

a plurality of despread demodulators, which are arranged for the plurality of channels, for demodulating a corresponding spread signal among a plurality of spread signals included in an input signal according to the timing signal generated by said path detector.

5 a plurality of despread demodulators, which are
respectively arranged for the plurality of channels,
for demodulating a spread signal transmitted over a
corresponding channel by despreading the spread signal
with a corresponding spread code; and

said instructing means is shared by the plurality
15 of despread demodulators.